

PHOSFOS Fact Sheet – Flexible femtosecond laser grating inscription and fibre micromachining applied to vectorial sensing

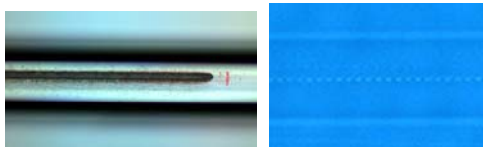
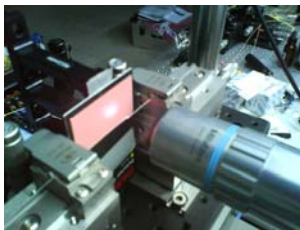
Introduction

Since its start in 2008, PHOSFOS develops a new paradigm for flexible optical sensors integrated with electronic modules and control circuitry. It aimed at developing a generic technology that offers an integrated solution to this increasing demand. The project is now reaching its end and has achieved several major breakthroughs in the field of optical sensing, flexible materials, embedding technologies and integration concepts which may be used in a wide range of applications.

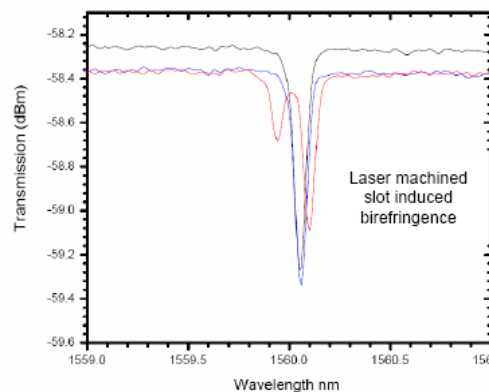
Breakthrough

Within PHOSFOS we have developed a new method for inscribing fibre Bragg gratings in optical fibres, whilst also selectively inducing birefringence in the optical fibre, at the same spatial location as the grating, thereby developing vectorial sensors, all on a common femtosecond laser inscription platform.

Technology



Fibre incorporating femtosecond laser inscribed Bragg grating and micro-slot



Modified Bragg grating spectrum resulting from induced birefringence

Application

The technology allows for the fabrication of birefringent, wavelength encoded optical fibre sensors for accurate strain measurements. We have coated with magnetostrictive material to realise a unique DC magnetic field sensor.

Contacts

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